A2D 980 735 781 2E

B R W

March 4, 1993

B R W INC.

Mr. Bill Jolly
Salt River Pima–Maricopa Indian Community
10155 East Osborn Road
Route 1, Box 216
Scottsdale, AZ 85256

Re: Tri–City Landfill Emergency Containment Dike; 1824K01

Dear Mr. Jolly:

This letter is to serve as a certification as to the discharge volume in the Salt River that will be below the elevation of the top of the emergency containment dike. The elevations of the top of the emergency containment dike are certified in a letter from Mr. Ed Vincent, RLS, of BRW, Inc. dated March 2, 1993.

The current HEC–2 computer model of the Salt River water surface profile maintained by the Maricopa County Flood Control District (MCFCD), was approved in 1986, developed in 1983 and 1984, and was based on topographic data obtained in 1982. This model is only accurate for the conditions under which the model was developed. Any changes to the Salt River since 1982 that have occurred because of flooding and on–going mining operations will result in a difference between the regulated water surface profiles and the actual observed water surface elevations during the January 1993 floods.

We have made an attempt to use the existing HEC–2 computer model maintained by the MCFCD to determine the discharge volume in the Salt River that will be below the elevation of the top of the emergency containment dike. However, the water surface profile elevations from these calculations did not correlate with the observed and measured stage–discharge of the Salt River during the January 1993 floods. The observed and measured staged–discharge data is presented in Table 1. The water surface profile elevations calculated from the MCFCD HEC–2 computer model for existing conditions for three river discharge volumes is presented in Table 2. The downstream, or west end of the emergency containment dike, is at about river mile 30.458. The upstream, or east end of the emergency containment dike, is at about river mile 30.815.

As part of the Salt River Channelization and Bank Protection design concept report prepared by BRW, Inc. for the Salt River through the Salt River Pima–Maricopa Indian Community (SRP–MIC), a HEC–2 computer model of the channelized Salt River was developed. This HEC–2 computer model uses a trapezoidal channel with a 950 foot top width. The calculated water surface profile elevations from the

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MCFCD HEC–2 "Channelized" computer model are shown in Table 3. This data also does not correlate with the observed and measured stage–discharge data shown in Table 1.

Because of the changes in the Salt river topography since 1982, and the failure of the observed and measured stage–discharge data to correlate with the existing conditions and channelized MCFCD HEC–2 computer models, it can be concluded that the computer models do not accurately represent the 1993 experienced water surface profiles. This conclusion is to be expected because of the changes in the Salt River. In fact, the MCFCD is in the middle of a process to develop new and current HEC–2 computer models of the Salt River.

When the three sets of stage–discharge data presented in Tables 1, 2 and 3 are graphed, as shown in Graph 1, dated March 3, 1993, data trends can be observed. Each data set approximates a straight line and all three graphed lines are approximately parallel. Therefore, it is my professional judgement that for the purpose of determining an approximate discharge volume in the Salt River that will be below the elevation of the top of the emergency containment dike, an interpolation of the data line for the observed and measured stage–discharge data will approximate the desired discharge volume. Interpolating in this manner from Graph 1 results in an approximate discharge volume of 170,000 to 180,000 CFS in the Salt River that will have a water surface elevation below the top of the emergency containment dike.

This methodology that is utilized herein is the most reasonably accurate determination of the desired discharge volume that can be made with available information. To determine a more accurate discharge volume will require field surveying new river cross–sections and developing a new HEC–2 computer model calibrated to observed and measured data. This latter methodology is not practical at this time because water is still flowing in the Salt River.

Should you have any questions about the methodology or conclusions presented in this letter, please give me a call.

Respectfully,
BRW, Inc.

Daniel W. Cook, PE
Associate, Director of Urban Infrastructure

Enclosures

KWUI-L01/SRDSCHEL.LTR

TABLE 1

SALT RIVER OBSERVED AND MEASURED STAGE DISCHARGE DATA AT THE TRI-CITY LANDFILL EMERGENCY CONTAINMENT DIKE

Date	Average Top of Dike Elevation[A]	Water Surface Elevation[A]	Salt River Discharge Volume (CFS)[B]
January 17, 1993 8:00 AM	1225.0	1220.4	42,475
January 24, 1993 12:00 PM	1229.0	1217.1	25,050

Notes:

(A) As field surveyed by Ed Vincent, RLS of BRW, Inc.
(B) As reported by the Salt River Project.

TABLE 2
CALCULATED SALT RIVER WATER SURFACE PROFILE ELEVATIONS FROM THE MCFCD HEC-2 EXISTING CONDITIONS COMPUTER MODEL

River Mile	Existing Conditions Water Surface Elevations		
	70,000 CFS	124,000 CFS[A]	225,000 CFS[B]
30.458	1227.26	1230.57	1234.07
30.518[C]	1227.54	1230.86	1234.46
30.726[D]	1228.27	1231.63	1235.48
30.815	1228.67	1232.05	1236.04

Notes:

(A) Peak Discharge in the Salt River during the January 1993 floods.
(B) 100-year frequency discharge in the Salt River.
(C) River mile at downstream, or west end of the emergency containment dike.
(D) River mile at upstream, or east end of the emergency containment dike.

TABLE 3
CALCULATED SALT RIVER WATER SURFACE PROFILE ELEVATIONS FROM THE MCFCD HEC-2 CHANNELIZED COMPUTER MODEL

River Mile	Channelized Water Surface Elevations		
	70,000 CFS	124,000 CFS[A]	225,000 CFS[B]
30.458	1218.32	1221.33	1226.37
30.518[C]	1218.53	1221.57	1226.58
30.726[D]	1219.07	1222.18	1227.14
30.815	1219.36	1222.52	1227.45

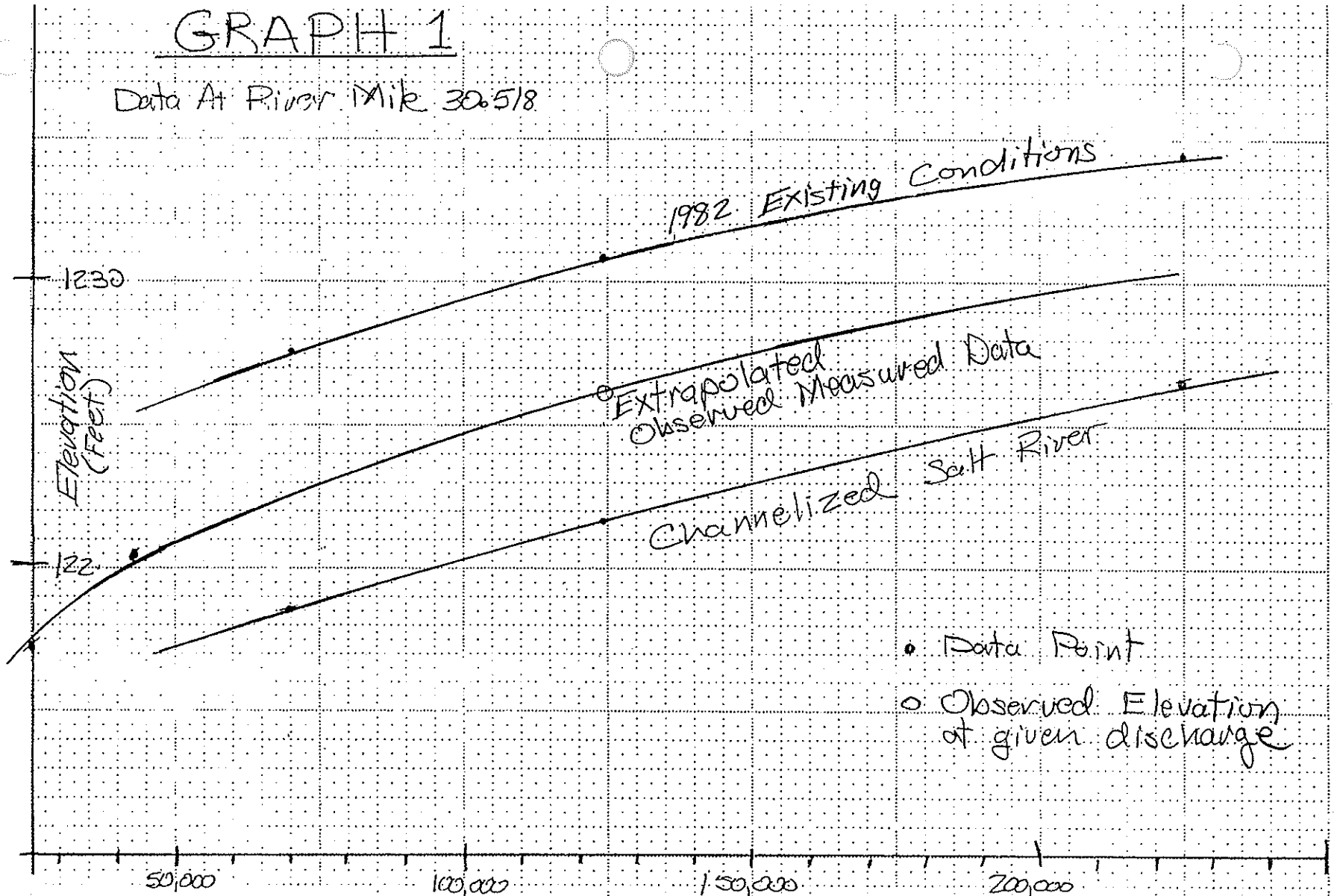
Notes:

(A) Peak Discharge in the Salt River during the January 1993 floods.
(B) 100-year frequency discharge in the Salt River.
(C) River mile at downstream, or west end of the emergency containment dike.
(D) River mile at upstream, or east end of the emergency containment dike.

BRW
MINNEAPOLIS PHOENIX DENVER

GRAPH 1

Data At River Mile 30.518



SALT RIVER DISCHARGE Volume

Cubic Feet per Second (CFS)

JOB SRPMIC SHEET NO.

MADE BY DWC DATE 3-3-93 JOB NO. 1824K01

CHECKED BY DATE SEC. SHT. NO.

CALCULATIONS FOR Discharge at Emergency Containment Dike

B R W

B R W INC.

March 2, 1993

Mr. Bill Jolly
Salt River Pima–Maricopa Indian Community
Route 1, Box 216
Scottsdale, AZ 85256

Re: Tri–City Landfill Emergency Containment Dike; BRW #1548K09

Dear Mr. Jolly:

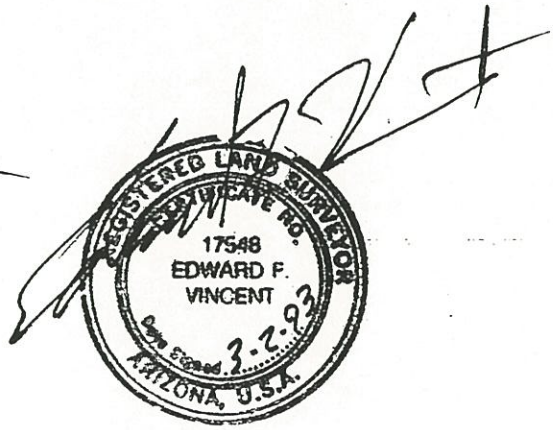
On February 6, 1993 BRW recorded elevations on the top of the above referenced Emergency Containment Dike (see attached exhibit). These elevations are based on a Bench Mark elevation supplied by the Arizona Department of Transportation and the specific Bench Mark used by our organization was number 180–2, a one inch cap in concrete located in the east right–of–way fence of the Beeline Highway at milepost 179.45. The elevation of 1251.12 for this Bench Mark was given to us by ADOT.

The elevations of February 8, 1993 were taken under my direct supervision, and are correct to the best of my knowledge.

Sincerely,
BRW, Inc.

Edward F. Vincent, R.L.S.
Survey Manager

KW/UI–L01/SRPMICSV.LTR



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[illegible]ey L. Benson
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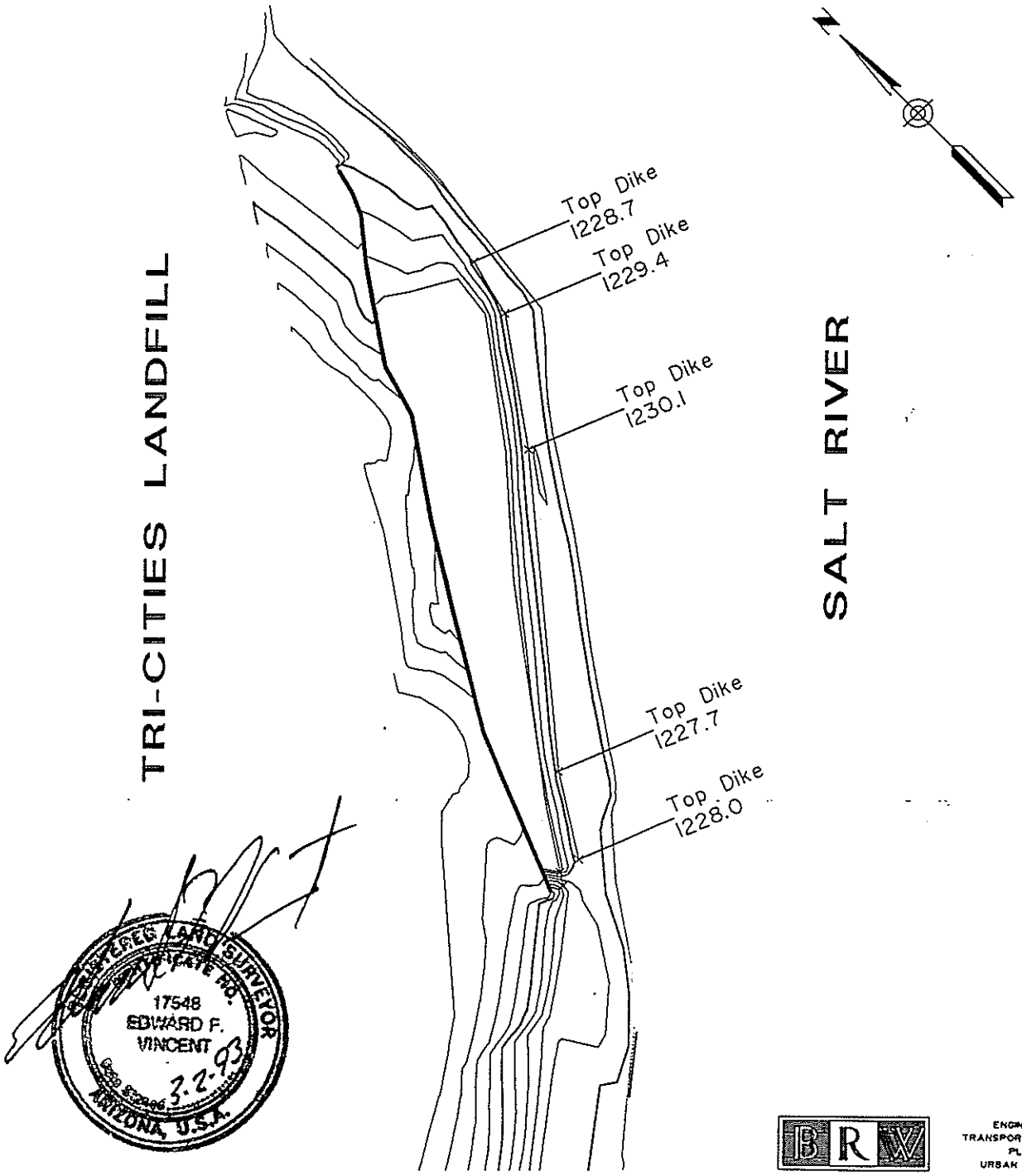
TRI-CITIES LANDFILL
TOP OF DIKE ELEVATIONS
FEB. 8, 1993



REGISTERED LAND SURVEYOR
17548
EDWARD F.
VINCENT
3-2-93
ARIZONA, U.S.A.

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